**Listing of the Claims**

A listing of the claims with the status of each is set forth below:

1. (Currently Amended). A pipeline processing type shaping apparatus that calculates a ~~predetermined~~ transmission scheduling time for each input packet to said apparatus by performing pipeline processing by a pipeline processing portion, said apparatus comprising: ~~concerning an input packet of a plurality of flows and shaping each of these flows, including:~~

a management memory that stores a latest scheduling time allocated to a packet which has been processed by said pipeline processing portion;

a storage part that stores and manages a number of packets and a total sum length of packets currently ~~and stores flow information~~ being processed in said ~~the~~ pipeline processing portion for each packet flow as flow information ~~of the flows~~; and

a calculating part that calculates the transmission ~~predetermined~~ scheduling time of an input packet to said pipeline processing portion; referring to the latest scheduling time being managed by said management memory and said total sum length of packets including own packet and other packets currently being processed in said ~~the flow information regarding the flow of a packet input to the~~ pipeline processing portion~~, and assuming that a virtual packet was input in which all packets that belong to the flow are connected~~.

2. (Currently amended) The pipeline processing type shaping apparatus according to claim 1, wherein the calculating part comprising: ~~includes~~

a reading block that reads from the stored part ~~for reading the~~ the flow information of packet a flow to which coincides with the packet flow of the packet input ~~this packet belongs from the storage part in response to the input of a packet~~ to the pipeline processing portion; and

a ~~means for~~ calculating block that calculates the transmission ~~the~~ ~~predetermined~~ scheduling time of the packet input to said pipeline processing portion referring to the latest scheduling time being managed by the management memory and the flow ~~this read~~ information read by said reading block with adding

a own packet length of the packet.

3. (Currently amended) The pipeline processing type shaping apparatus according to claim 1 2, further comprising including:

a storage information update part that increments the number of packets and the total sum length of packets stored in updates the flow information of the storage part for each of the packet flows in response to the input of the a packet to the pipeline processing portion, and decrements the number of packets and the total sum length of packets stored in the storage part for each of the packet flows in response to the output of a packet from the pipeline processing portion.

4. (Original) The pipeline processing type shaping apparatus according to claim 3, wherein the storage part has internal registers that are equal to the number of processing blocks of the pipeline processing portion, and each of the internal registers stores flow information of a packet that belongs to the same flow for which pipeline processing is being processed.

5. (Canceled)

6. (Currently amended) A pipeline processing type shaping method that performs the pipeline processing by a pipeline processing portion for calculating a transmission scheduling time for each input packet to said pipeline processing portion, said method comprising concerning an input packet for a plurality of flows, shapes each of these flows, and calculates a predetermined scheduling time, including the steps of:

storing a latest scheduling time allocated to a packet which has been processed by said pipeline processing portion;

managing and storing a number of packets and a total sum length of packets currently flow information being processed in the pipeline processing portion for each packet flow as flow information of the flows; and

calculating the predetermined transmission scheduling time of a packet input to said pipeline processing portion; referring to the latest scheduling time

being stored and said total sum length of packets including own packet and other packets currently being processed in said ~~flow information regarding the flow of the packet input to the~~ pipeline processing portion~~, and assuming that a virtual packet was input in which all packets that belong to the flow are connected~~.

7. (Currently amended) The pipeline processing type shaping method according to claim 6, wherein the calculating step comprising: ~~includes the steps of~~

reading the flow information of ~~a~~ packet flow ~~to~~ which coincides with the packet flow of the packet input ~~this packet belongs from a storage part in response to the input of a packet~~ to the pipeline processing portion; and

calculating the ~~predetermined~~ transmission scheduling time of the packet input to said pipeline processing portion referring to the latest scheduling time stored in said storing step and flow ~~this read~~ information read in said reading step with adding a own packet length of the packet.

8. (Currently amended)  The pipeline processing type shaping method according to claim 6 ~~7~~, further comprising:

incrementing the number of packets and the total sum length of packets being stored ~~including the step of updating flow information of the storage part~~ for each of the packet flows in response to the input of a ~~the~~ packet to the pipeline processing portion; and

decrementing the number of packets and the total sum length of packets being stored for each of the packet flows in response to the output of a packet from the pipeline processing portion.

9. (Original)  The pipeline processing type shaping method according to claim 8, wherein the storage part has internal registers that are equal to the number of processing blocks of the pipeline processing portion and wherein each of the internal registers stores the flow information of a packet belonging to the same flow for which pipeline processing is being processed.

10. (Cancelled)

11. (Currently amended) A recording medium that records a control program of a pipeline processing type shaping method that performs the pipeline proceesing by a pipeline processing portion for calculating a transmission scheduling time for each input packet to said pipeline processing portion, said control program comprising:

storing a latest scheduling time allocated to a packet which has been processed by said pipeline processing portion; ~~in which a predetermined scheduling time is calculated by performing the pipeline processing by a pipeline processing portion concerning an input packet for a plurality of flows and shaping each of these flows, and the control program, including the steps of:~~

managing and storing a number of packets and a total sum length of packets currently ~~flow information~~ being processed in the pipeline processing portion for each packet flow as flow information ~~of the flows~~; and

calculating the ~~predetermined~~ transmission scheduling time of the packet input to said pipeline processing portion, referring to the latest scheduling time stored in said storing step and the flow information read in said reading step with adding a own packet length of the packet ~~regarding the flow of the packet input to the pipeline processing portion, and assuming that a virtual packet was input in which all packets that belong to the flow are connected~~.

12. (Currently amended) The recording medium according to claim 11, where the control program of the calculating step comprising ~~further including the steps of~~:

reading the flow information of a packet flow ~~to~~ which coincides with the packet flow of the packet input to the pipeline processing portion; ~~this packet belongs from the storage part~~ and

calculating the ~~predetermined~~ transmission scheduling time of the packet input to said pipeline processing portion referring to the latest scheduling time stored in said storing step and the flow ~~this read~~ information read in said reading step with adding a own packet length of the packet, ~~in response to the input of the packet to the pipeline processing portion~~.

13. (Currently amended)  The recording medium according to claim <u>11</u> ~~12~~, further <u>comprising:</u>

<u>incrementing the number of packets and the total sum length of packets being stored for each of the packet flows</u> ~~including the step of updating flow information of the storage part for every flow~~ in response to the input of <u>a</u> ~~the~~ packet to the pipeline processing portion<u>; and</u>

<u>decrementing the number of packets and the total sum length of packets being stored for each of the packet flows in response to the output of a packet from the pipeline processing portion.</u>

14. (Original)  The recording medium according to claim 13, wherein the storage part has internal registers that are equal to the number of processing blocks of the pipeline processing portion and wherein each of the internal registers stores the flow information of a packet belonging to the same flow for which pipeline processing is being processed.

15-18. (Canceled)